

# MANAGING SOLID WASTE

November 2000

Volume 5 Number 1

## Indiana Composting Facilities: 1999 Update

This volume updates volume 4, number 1 of *Managing Solid Waste*, "Indiana Composting Facilities: 1998 Update." See volume 3, number 2 of *Managing Solid Waste*, "Indiana Composting Facilities" for a detailed summary and history of Indiana composting facilities from 1994 through 1997.

Composting allows for the reclamation and reuse of materials such as discarded vegetative matter that would otherwise end up at Indiana's landfills and incinerators. The Indiana Department of Environmental Management (IDEM) administers a registration and annual reporting program for facilities composting vegetative matter. Indiana composting facilities process between 200,000 and 250,000 tons of vegetative matter annually – mostly leaves, wood, and brush. About half the compost produced each year is given away by local governments as part of their reuse and recycling efforts.

This paper is the 11th in the series *Managing Solid Waste* by the IDEM Office of Land Quality. For more information, contact the Facility Data Analysis Section at (317) 233-3834. A copy of this paper can be downloaded at <http://www.state.in.us/idem/olq/>.

### INTRODUCTION

Composting is the transformation of vegetative matter and other organic materials into a humus (or compost) better suited as fertilizer than the original materials. The transformation is accomplished through natural biochemical processes. Composting is one of the main processes used to reclaim and reuse vegetative matter. Other processes include mulching and land application.

According to most recent U.S. Environmental Protection Agency statistics, yard wastes make up approximately 13% by weight of the municipal solid waste stream nationally. This includes mostly vegetative matter like leaves, brush, wood, and grass. The diversion of these materials from final disposal can increase the life of Indiana landfills. In addition, the re-use of discarded vegetative matter as either compost or mulch decreases the use of chemical fertilizers and other landscaping products that can have large negative environmental impacts.

At the end of 1999, there were 80 registered composting facilities in Indiana. This is an increase from the 50 facilities registered in 1994, the first year registration was required, and an increase from 76 registered facilities in 1998 (see Table 1). More than half of Indiana counties have at least one composting facility. It is important to note that several facilities were inactive at some point during the last five years.

1998 totals are listed separately from previous year totals because prior to 1998, facilities submitted receipt totals in volume units; beginning in 1998, facilities submitted all data in tons. Thus, 1998 and prior year figures are not comparable.

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# Indiana Composting Facilities

Table1. Tons of Total Materials Received by Indiana Composting Facilities in 1999 and 1998			
County	Facility	Tons Received 1998	Tons Received 1999
Adams	Decatur Composting	891	no report
Allen	Martin Composting	no report	2,980
Allen	National Serv-All Compost	3,509	4,131
Bartholomew	Columbus- Bartholomew Yard Waste Site	4,289	4,848
Boone	Greencycle of Indiana	opened 1999	5,246
Cass	Cass Co. SW Composting Site	4,406	3,745
Clark	Clark County Compost	4,420	9,438
Clark	Koetter & Smith	1,995	750
Daviess	City of Washington Composting Facility	1,294	1,583
Daviess	Mulch Makers	no report	no report
Dearborn	Greendale Composting	949	693
Decatur	Decatur Hills Landfill	0	0
Dekalb	Dekalb Co. Yard Waste Composting	2,312	2,513
Elkhart	City of Goshen Composting	1,467	1,520
Elkhart	Elkhart Co. Landfill	125	91
Elkhart	Elkhart Environmental Center	6,155	6,165
Fayette	City of Connersville Compost Facility	no report	999
Floyd	Earth First of Kentuckiana Inc.	9,169	7,052
Fountain	Fountain Co. Recycling Station/Compost Site	4	33
Fountain	Harrison Steel Castings Compost Site	24	19
Franklin	Brookville WWTP Compost Facility	0	63
Fulton	County Line Landfill	0	0
Gibson	Princeton Compost	9,132	2,769
Grant	Gas City Composting	no report	472
Hamilton	Creative Landscaping and Compost Co.	1,280	2,076
Hancock	Hancock Co. Landfill	0	0
Hendricks	Ray's Composting	0	0
Hendricks	Plainfield Correctional Facility	3,880	3,001
Howard	City of Kokomo Yard Waste Composting	2,159	3,004
Huntington	City of Huntington Landfill Composting	1,968	1,141
Jackson	Seymour City Composting Facility	aprox. 14	no report
Jefferson	City of Madison T.S.	63,000	2,200
Jefferson	Town of Hanover Composting Facility	18	29
Kosciusko	Superior Excavating	84	770
Kosciusko	City of Warsaw	opened 1999	not required
Lagrange	LaGrange Co. Yard Waste Composting	407	375
Lagrange	Shipshewana WWTP	opened 1999	not required
Lake	City of Gary Compost	6,509	8,434
Lake	Fertile Earth Gary Compost Facility	8,114	14,028
Lake	Greencycle of Indiana E. Chicago Facility	2,015	2,604
Lake	Greenwaste	0	no report
Lake	Munster Landfill	1,171	1,230
Lake	Stuhlmacher Soil Service, Inc.	94	184
Lake	Town of Griffith Landfill	2,359	2,325
LaPorte	Westville C.F. Compost Site	90	1,713
Lawrence	Town of Lawrence	250	no report
Madison	Pendleton CF Compost	1,287	597
Madison	Adams Compost Facility	opened 1999	3,750
Marion	Greencycle of Indiana	24,343	27,829
Marion	O.M. Scott & Sons	8,276	closed
Marion	Resource Recovery and Recycling	0	closed
Marion	Southside Landfill	11,361	16,043
Marion	Town of Cumberland	343	380
Marion	Tiffany Compost Facility	opened 1999	not required
Monroe	Good Earth Composting	445	468
Monroe	Topsoil Composting Service	7,479	no report

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Table1. Tons of Total Materials Received by Indiana Composting Facilities in 1999 and 1998			
County	Facility	Tons Received 1998	Tons Received 1999
Morgan	Greendell Farm	1,970	2,120
Newton	Good Earth Farms	0	closed
Newton	Newton Co. Landfill	370	0
Noble	Ligonier Compost	45	339
Pike	Velpen C/D Landfill, Inc.	opened 1999	286
Porter	Crocker Composting Site	2,018	1,083
Porter	Portage Composting	2,981	4,377
Porter	South Co.	0	0
Porter	Valparaiso Municipal Composting Site	4,669	3,499
Putnam	Putnamville Correctional Facility	292	380
Randolph	City of Winchester Compost	312	429
Randolph	Randolph Farms, Inc.	122	23
St. Joseph	Household Hazardous Waste and Recycling Center	2,287	1,966
St. Joseph	Organic Resources	34,138	19,668
St. Joseph	Pioneer Southern Horticultural Products	82	61
Shelby	Caldwell Landfill	1,882	1,376
Steuben	Steuben Co. Yard Waste Composting	1,943	1,654
Sullivan	Wabash Valley Correctional Facility	538	1,891
Tippecanoe	Purdue University	3,456	400
Tippecanoe	Tippecanoe Co. Compost Facility	400	725
Tipton	City of Tipton Composting Facility	2,444	1,245
Vanderburgh	Laubscher Meadows Composting Facility	898	5,083
Vigo	Victory Landfill	3,392	3,468
Vigo	White Violet Center	98	98
Washington	Washington Co. SWMD Composting	1,278	1,455
White	Transfarm, Inc.	opened 1999	20,837
Whitley	City of Columbia Compost Facility	280	260
NOTE: Facilities for which tons are "not required" registered after the 1999 blank report forms were mailed by IDEM and thus were waived from reporting until the following year of operation.			

### **REGULATORY AND OPERATIONAL REQUIREMENTS**

In 1992, the Indiana Legislature approved Public Law 84, now codified as IC 13-20-9. This law includes a restriction on disposal of vegetative matter. The ban applies to residential, commercial, and industrial sources. IDEM has issued guidance to interpret what materials are subject to the ban. (See Table 2. More information regarding the yard waste ban appears in the nonrule policy document "Important Notice Regarding the Yard Waste Disposal Ban," available from IDEM's Office of Land Quality.) This ban makes composting facilities an essential facet of solid waste management.

Composting facilities are required by state law to register with IDEM. Each registration is

valid for five years, and can be renewed by submitting an updated registration form to IDEM 90 days prior to expiration.

There is no fee for registration or renewal. Composting operations that process less than 2,000 pounds of vegetative matter during a year are exempt from these registration requirements.

In addition to the registration requirements, the law requires that the facility operator submit an annual report to IDEM. The Composting Facility Annual Report indicates the amount of vegetative matter processed during the previous year, and the final use of the compost. The first reporting year was 1994.

# Indiana Composting Facilities

Table 2. Summary of Indiana's Yard Waste Ban

Materials SUBJECT to Yard Waste Disposal Ban	<ul style="list-style-type: none"> <li>• leaves</li> <li>• brush</li> <li>• woody vegetative matter greater than 3 feet in length</li> </ul>
Materials EXEMPT from Yard Waste Disposal Ban	<ul style="list-style-type: none"> <li>• grass</li> <li>• woody vegetative matter bagged, bundled, or otherwise contained and less than 3 feet in length</li> <li>• very small amounts of vegetative matter bagged, bundled, or otherwise contained and less than 3 feet in length AND combined with other solid waste</li> <li>• Christmas trees</li> <li>• house plants</li> <li>• vegetable food scraps</li> <li>• vegetative by-products not derived from landscaping maintenance or land clearing projects such as from flower shops and funeral homes</li> <li>• IDEM-approved composted vegetative matter used as cover material for a solid waste landfill</li> </ul>

## MATERIALS PROCESSED

The facilities that reported receiving materials in 1999 accepted approximately 220,000 tons of organic materials. This amount is an approximation for three reasons:

1. Beginning in 1998, composting facilities are required to report their intake in tons. Many facilities do not have weigh scales, and must convert volume measurements to weight based on conversion factors such as those in Table 3. Volume-to-weight conversion factors vary widely depending on the composition, moisture content, and compaction rate of the vegetative matter.
2. Six facilities did not fulfill their legal requirement to submit reports for 1999 and three opened subsequent to IDEM's mailing of the 1999 annual report forms and thus could not report. These were assumed to have had no materials processed for the year, which results in an understatement of compost received shown here by the amount of any materials received but not reported by these facilities.

Figure 1. Estimated Tons Received by Composting Facilities, Converted from Reported Volume Units

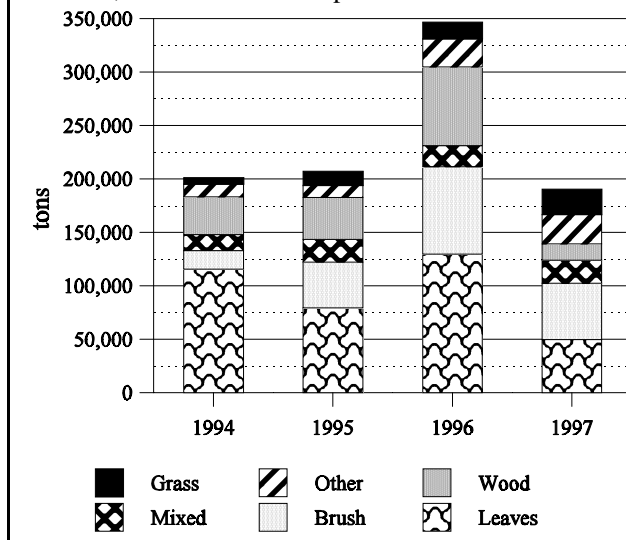
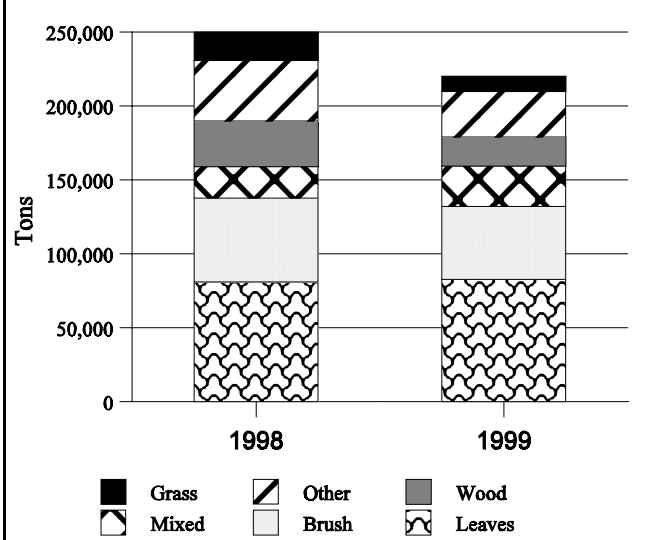


Figure 2. Estimated Tons Received by Composting Facilities in 1998 and 1999



## Indiana Composting Facilities

3. Some loads of materials are received in a manner that prohibits documentation by type and/or weight, especially small loads from residential customers. In 1999, 26 of 80 facilities or 33% received undocumented loads (these totals may be understated if non-reporting facilities received undocumented loads).

As shown in Figures 1 and 2, leaves account for a significant portion of total receipts. Other materials received at composting facilities were wood, brush, grass, straw, food waste, manure and sludge.

Table 3. Examples of Conversion Factors for Compostable Materials (Cubic Yards Per Ton)		
Material Description	Loose	Compacted
brush	6.67	2.20
brush, shredded	5.37	--
cardboard	6.67	--
food waste	1.30	--
grass	5.00	2.50
leaves	10.00	5.00
leaves, shredded	6.70	5.71
mixed yard waste, fall	8.10	3.60
mixed yard waste, summer,	5.70	2.60
paper	4.00	--
whole wood	7.14	5.88
wood, chipped	4.00	3.60

### FINAL USES OF COMPOST AND OTHER PRODUCTS

Composting facilities may produce finished compost in as short as three months or as long as two years, depending on the type of raw materials, ambient temperature, and processing methods. At the end of 1999, 33% of the materials managed by Indiana registered composting facilities were still in the process of being converted to compost. Over the last six years, materials received and still in process of being converted to compost at year

end ranged from 33% to 50%.

Figure 3 shows the final uses of the materials that were successfully converted into either compost or mulch during the last six years. In 1999, facilities gave away 39% of total converted product, an increase from the amount given away in 1998. Facilities giving away product are primarily those run by cities, counties, or solid waste management districts.

### REFERENCES AND FURTHER READING

Indiana Department of Environmental Management and the Indiana Recycling Coalition, *Indiana Yard Waste Solutions*; January 1993

U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response, *Characterization of MSW in the United States: 1999 Update Fact Sheet and Source Data on the 1999 Update*; May 2000 ([www.epa.gov/epaoswer/non-hw/muncpl/msw99.htm](http://www.epa.gov/epaoswer/non-hw/muncpl/msw99.htm))

# Indiana Composting Facilities

Figure 3 : Final Uses of Compost by Percent

